



SEQUENCE LISTING

<110> Pizza, Mariagrazia
Bartoloni, Antonella

<120> IMMUNOLOGICALLY ACTIVE POLYPEPTIDES WITH ALTERED TOXICITY USEFUL FOR THE PREPARATION OF AN ANTIPERTUSSIS VACCINE

<130> 002441.00076

<150> US 08/261,668

<151> 1994-06-17

<150> US 08/012,243

<151> 1993-02-01

<150> US 07/265,742

<151> 1988-11-01

<150> ITALY 22481 A/87

<151> 1987-11-02

<160> 30

<170> PatentIn version 3.1

<210> 1

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<212> DNA

<213> Artificial

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<223> Primer used to modify the S1 gene to encode an aspartic acid and glycine in place of tyrosine and arginine at amino acid residues 8 and 9, respectively

<400> 1

gtcatagccg tctacggt

18

<210> 2

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<213> Bordetella pertussis

<400> 2

cgccaccgta taccgctatg actcccgccc g

31

<210> 3

<211> 31

<212> DNA

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<400> 3

cgccaccgta gacggctatg actcccgccc g

31

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<400> 4
tggagacgtc agcgctgt 18

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agcgcttcg tctccaccag c 21

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agcgctgacg tctccatcag c 21

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ctggcggctt ctagaaaa 18

<210> 8
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tacggcgccg c 11

<210> 9
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<400> 9
tacgaagccg c 11

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aspartic acid at amino acid residue 109

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ctggtaggtg tccagcgcc c

21

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<400> 12
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11

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18

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11

<210> 15
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11

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tggacaccta c 11

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agcgggtatc t 11

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ggacattccg c 11

<210> 25
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<400> 27
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<210> 28
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21

<210> 30
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<400> 30
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33